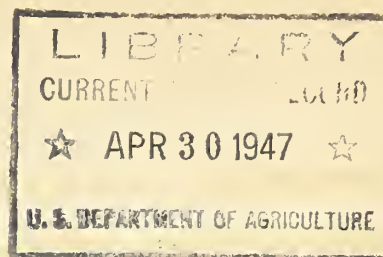


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REPORT
of the
SECOND NORTHEASTERN CORN IMPROVEMENT CONFERENCE

New Brunswick, New Jersey
February 4-5, 1946

Reported by
Merle T. Jenkins, Secretary

Mimeographed by
Division of Cereal Crops and Diseases
Bureau of Plant Industry, Soils, and Agricultural Engineering
Plant Industry Station, Beltsville, Md.
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REPORT OF THE SECOND NORTHEASTERN CORN IMPROVEMENT CONFERENCE

Agricultural Experiment Station of Rutgers University
New Brunswick, New Jersey
February 4-5, 1946

Reported by Merle T. Jenkins 1/ Secretary

INTRODUCTION

The New Brunswick conference was a work-planning conference for the northeastern regional breeding and testing programs with field corn and sweet corn for the season of 1946. Ten of the twelve Northeastern States, the adjoining states of Virginia and Ohio, the Canadian Province of Ontario, and the U. S. Department of Agriculture were represented. The meetings were held in the lecture room of the Administration Building of Rutgers University. The conference was approved by the Directors of the Northeastern States.

AFTERNOON MEETING, MONDAY, FEBRUARY 4

In the absence of Dr. D. F. Jones, Chairman of the Northeastern Corn Improvement Conference, the meeting was called to order at 1:40 p.m. by the Secretary, Merle T. Jenkins, who introduced Dr. W. H. Martin, Dean of the College of Agriculture and Director of the Agricultural Experiment Station of Rutgers University. Dean Martin welcomed the group and expressed his approval of the objectives of the Northeastern Corn Conference and its efforts to develop a coordinated corn improvement program for the Northeastern States. He discussed the accomplishments in early coordinated programs with potatoes which included breeding, pathology, fertilizer experiments, etc. He also discussed early coordinated programs with tomatoes, sweet potatoes and grass, and emphasized that progress was materially improved with the organization of these coordinated programs. Dean Martin felt that the stations must increase their efficiency if they are to continue to receive financial support for their research programs. They

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must lead the way in the reorganization that must come to agriculture and must help the farmer in meeting his problems and finding a solution for them. Dean Martin indicated that cooperation among the States is necessary to avoid unnecessary duplication and to insure that all phases of the regional problems are being adequately investigated.

The meeting then was turned over to Dr. L. L. Huber, Vice-Chairman of the conference, who acted as Chairman for the remainder of the conference.

Dr. Huber raised a question as to the order in which the various items for discussion were to be taken up at the meetings. It was decided to spend until 4 o'clock hearing reports from the various cooperating stations and then divide into two sessions, one for those interested in sweet corn and the other for those interested in field corn. Committee reports were scheduled for the morning session of February 5, thus allowing opportunity for committee discussions prior to the presentation of reports.

Dr. Huber suggested that inasmuch as no formal organization for the conference had been adopted at the New Haven meeting it seemed desirable to consider the subject at this meeting. Inasmuch as this was agreeable to the group, Dr. Huber appointed a Committee on Permanent Organization consisting of R. G. Rothgeb, Chairman, W. R. Singleton and J. C. Anderson. The committee was instructed to prepare an outline for permanent organization of the Northeastern Corn Improvement Conference and report at the morning session on February 5.

Chairman Huber then proceeded to call for station reports. These are summarized below.

REPORTS OF CORN IMPROVEMENT INVESTIGATIONS

CONNECTICUT

CONNECTICUT AGRICULTURAL EXPERIMENT STATION, New Haven

Sweet Corn Breeding

W. R. Singleton. Work was continued along the line of producing a series of hybrids of such different maturities that six or eight will mature at successive intervals when planted all at once. An earlier Spancross 13.3 has been released. This variety matures a few days earlier than the old Spancross 13.4 which was once the earliest variety in the series. A new hybrid C13 x 17 has been developed to possibly replace Marcross 13.6. The 13:17 hybrid has much better quality than Marcross although a slightly smaller ear.

Several midseason hybrids, in the season between Carmelcross and Lincoln, were in trial last year. One of these will probably meet the need for a productive good quality hybrid in this season.

In the late season, after Golden Cross Bantam, several promising hybrids were tried. There is a need for a good quality hybrid in this season, with an ear not much larger than Golden Cross. Wilson C31.88 matures in this season but the ear is too large for a market corn and the quality needs improving.

In the very late season two new hybrids, C53 x 95 and 88 x 95 have given good results and could be produced commercially. The ears are too large for the general market. Perhaps they could be grown by dairymen who could sell the green ears, if there were a market, if not put the whole crop in the silo. Yield tests have not been made on such a sweet silage but they would probably compare favorably with midseason field corn hybrids.

A by-product of the sweet corn breeding program is a sweet-dent silage made by using a very late sweet corn inbred C95 as the pollen parent and one of a number of first generation field corn hybrids as a seed parent. The sweet dent silage varieties that have given best results so far are L317, Ohio 40B x 95 and Hy.40 x 95. Yield tests have not been made but the hybrids are about the same season as U.S. 13 and probably will yield about as well. Preliminary tests indicate that dairy cows prefer this type of silage to regular field corn silage.

Field Corn Breeding

Oliver E. Nelson, Jr. As a result of the inbreeding and testing program here at Connecticut four new field corn inbreds have been selected for release in 1946. They are Connecticut 102, 103, 104 and 105.

Connecticut 102 is a tall, dark green, Lancaster inbred with good stalk characteristics. The inbred ear is large with typical Lancaster kernel type. As measured by test crosses C102 appears to have very satisfactory yield potentials.

Connecticut 103 is a Lancaster inbred with stalk and root characteristics unequalled by any inbred grown here at Connecticut. Its toughness of stalk enables it to withstand even heavy infestations of corn borer without breaking. This durability is transmitted to hybrids with this inbred in the pedigree. The ear is long with orange colored kernels which are resistant to cracking and molding. A number of double crosses made with (40B x C103) as the pollinator are available for testing in 1946.

Connecticut 104 is a line of Long's Champion derivation. It is tall with a sparse tassel. The ear is very large in diameter with a large, moist cob and coarse reddish kernels. Because of its slow drying qualities this inbred is not recommended for grain corn hybrids. However, it imparts to its hybrids large ear size together with good stalk growth, and it is anticipated that it might be very useful in any hybrid made exclusively for silage purposes.

Connecticut 105 is an early inbred from a cross of Ohio 25 and an early popcorn. It is slightly earlier than Minn. A158 and possesses an excellent stalk and root. The ear size is good and the kernels are a flinty dent.

Several more dent inbreds of the late season will be ready for release in 1947.

A late all-combination test comprising the inbreds A, B164, I159, WF9, P8, CC27, CC35, 540, Oh40B, L317, and I159, was grown this past summer. I159 was outstanding in contributing yield and lodging resistance to hybrids. The other ten inbreds were about equal in general combining ability as regards yield. WF9 and Oh40B hybrids showed the lowest stalk breakage. The best of the predicted hybrids from this test are:

(CC35 x I159) x (Oh28 x Oh40B)	112 bushels per acre
(B164 x I159) x (540 x Oh40B)	110 " " "
(CC35 x I159) x (P8 x Oh40B)	110 " " "
(A x I159) x (540 x Oh40B)	110 " " "
(A x Oh40B) x (CC35 x I159)	116 " " "
(L317 x I159) x (540 x Oh40B)	110 " " "
(Oh40B x CC27) x (L317 x I159)	111 " " "
(CC35 x I159) x (Oh40B x CC27)	111 " " "

We also have made up two all-combination tests (One of the U.S. 13 season and the other of the Iowa 939 season) in line with our commitments at the last meeting of the Northeastern Corn Conference. This seed is available for cooperative testing in 1946.

DELAWARE

DELAWARE AGRICULTURAL EXPERIMENT STATION, Newark.

Trials of Field Corn Hybrids

C. E. Phillips. Twenty-four hybrids were planted in randomized block layouts at two locations, Newark and Georgetown. The summer was excessively wet. Stalk breakage was excessively high particularly at Georgetown. This breakage seemed to be due to damage to the root system caused by the heavy rainfall.

Yields were quite variable between plots and statistical calculations show practically no significant differences in yields in either test.

Twenty-five hybrids and single crosses were tested in a triple-lattice design in cooperation with O. E. Nelson of the Connecticut Station.

Fourteen hybrids, principally those commonly planted for grain, were grown for silage at Newark. Illinois 448 produced a yield significantly higher than Ohio C-12 and U. S. 13.

Test of Sweet Corn Hybrids for Canning

E. M. Rahn. (Report presented by C. E. Phillips.) Seventeen yellow and six white sweet corn hybrids were tested extensively in 1945 at the University of Delaware. Nearly a half acre of each of ten of the yellow hybrids was grown and the corn was run through the cannery and packed as crushed corn. Records on cut-off corn and cases of canned corn were obtained. Approximately two-thirds of acreage grown for processing in Delaware has been planted to Golden Cross Bantam. But this test shows that other hybrids have more vigor, produce a higher tonnage of ears as well as fodder, and at the same time produce a pack of quality equal with that of Golden Cross Bantam. Notable in this regard were Tristate, Tendermost, and Golden Grain, yielding 4.1, 3.6, and 4.7 tons of ears per acre, respectively. Golden Cross Bantam produced 3.3 tons. The yields in cases of canned corn per acre were 164 for Tristate, 151 for Tendermost, and 125 for Golden Cross Bantam. The yields in cases of canned corn per ton of ears were 40 for Tristate, 41 for Tendermost, and 38 for Golden Cross Bantam. The stalks of Golden Cross Bantam were approximately one and one-half feet shorter than those of the other three hybrids mentioned above. Tristate produced many tillers while Tendermost and Golden Grain produced very few. Golden Cross Bantam was medium in this regard. Silver Cross Narrow Grain was the outstanding yielder of the six white hybrids tested.

Following C. E. Phillips' report, Merle T. Jenkins asked for an expression from the workers who had produced seed for the Northeastern Uniform Test of Single Crosses as to whether these tests should be listed in the Secretary's usual circular letter when he requested information from the various cooperating States as to their desire to have seed of the uniform tests for local use. After some discussion and consideration of the amounts of seed available Dr. R. G. Rothgeb

MOVED: That the uniform sets of single crosses produced in the Northeast be listed along with those from the other three corn improvement conferences.

Seconded and passed.

MAINE

MAINE AGRICULTURAL EXPERIMENT STATION, Orono

R. M. Bailey. (Report read by the Secretary.) Corn for Grain: Corn for grain is a minor crop in Maine. According to census figures, 5,000 acres were grown for this purpose in 1940. Because of the short growing season, farmers are limited to the use of early maturing varieties and until recently, local strains of flints have been most commonly planted. Trials of promising hybrids and varieties have been conducted at the Maine Station during the last five years and a few of the earliest

flint-dent and dent hybrids have proved sufficiently early maturing for recommendation to farmers. For general use Maine B (Wisconsin 240) is highly recommended as several years' trials by the Station and in cooperation with growers have demonstrated a marked superiority in yield, uniformity and stalk strength as compared to locally grown flints. Several of the earliest dents can be used with fair success in southwestern Maine.

Work at the Maine Station concerned with field corn improvement is limited at present to (1) a seed program to make Maine B (Wis. 240) available to farmers in northern New England and (2) a small breeding program including the testing of early inbreds and hybrids. Our primary need in field corn is for adapted hybrids that are as early or earlier than Maine B (Wisconsin 240) and flint and dent inbreds as early or earlier than Wis. 85, 15, CC4 and CC18. We will appreciate receiving for trial any inbreds or hybrids meeting these requirements that northeastern corn breeders may have to offer. Maine is pleased to cooperate with the Northeastern Corn Improvement Conference, insofar as facilities permit, in the testing of early materials and in the production of seed for uniform trials.

Corn for Silage: Several excellent hybrids are available to meet this requirement. Cornell 29-3 is recommended and widely used. Maine B is also used in short season locations.

Sweet Corn: Sweet corn for canning has an important place in Maine agriculture. The research program with this crop at the Experiment Station consists of projects concerned with breeding, corn borer control and fertilization.

The short growing season imposes a special need for early maturing, high yielding hybrids of desirable canning qualities. Golden Cross Bantam is too late for most growers. Better than 90 per cent of the canning acreage of yellow varieties is planted with hybridized seed. Two top crosses (Maine Golden Bantam x Me.100) and (Maine Golden Bantam x P39) and Maine Tricross (Maine Golden Bantam x Me.100 x P39) comprise most of the acreage. Seneca Golden, Carmelcross and Golden Cross are used to some extent. The Experiment Station cooperates with the Maine Cannery Association in a seed production program to meet a substantial part of the seed requirements and in the breeding and testing of promising hybrid combinations. Several new experimental hybrids resulting from the breeding program are promising and are expected to be more extensively tested by Maine Cannerymen.

Several hybrids and inbreds were exchanged last spring between sweet corn workers of Northeastern states to study adaptation and quality.

MARYLAND

MARYLAND AGRICULTURAL EXPERIMENT STATION, College Park

R. G. Rothgeb. Although the work planned for 1945 had to be limited, that which was undertaken came through satisfactorily. On the whole, seasonal conditions were favorable. Except for some loss in the nursery due to excessive rain and poor drainage, most of the breeding material was carried without difficulty. Yields were generally good. Drought was not a limiting factor in any of the tests. Due to the presence of conditions conducive to excessive lodging, there was an excellent opportunity to study root and stalk strength.

In brief, active lines of work for field corn were as follows: regional testing of double cross hybrids, double cross testing in cooperation with other stations in the northeastern conference, all-combination single cross testing involving local lines, inbreeding and preliminary study of local lines, multiplication of seed for a 10-line set of late single crosses for cooperative uniform tests in 1946, and the multiplication of foundation seed of lines for commercial use.

The regional double cross tests in the state were eight in number and were distributed over the three main corn growing regions, namely, Eastern or Coastal Plain, North Central or Piedmont, and West Central or Limestone Valley. These tests had four or five replicate plots and included both open and closed pedigree commercial hybrids together with a smaller number of experimental hybrids not yet in use. In all tests Illinois 448, U. S. 13, and Iowa 939 planted from composite seed stocks were used as checks in their respective maturity groups.

All breeding work was done at College Park. As in the past, the amount of inbreeding accomplished was largely dependent upon the time available. The process of isolating new lines from Golden Queen and Johnson County White was continued. A few homozygous lines from Reid Yellow Dent and Golden Queen were tested in all-combination single crosses. At present none appear particularly promising. Although one line was found to be prepotent for yielding ability, its stalk quality is poor.

Sweet corn work was also carried on at College Park. It was neither as extensive nor as intensive as that for field corn. It consisted largely of one replicated 72-entry yield test, a canning test for fifteen entries (in cooperation with the Department of Horticulture), observation plots for trial crosses, together with a crossing and inbreeding block for local inbreds, most of which are yellow lines recovered from crosses between white inbred, H84, and standard yellow lines.

MASSACHUSETTS

MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION, Amherst

Field Corn

H. M. Yegian. Corn occupies a greater area within the State of Massachusetts than any other cultivated crop. Because corn fits well in the rotation when refitting sodland in preparation for reseeding, it is grown primarily for silage on most of the Massachusetts dairy farms although small acreages are harvested for grain. According to 1940 census figures, the amount of land devoted to corn for all purposes was 40,369 acres, clover and timothy hay 162,559 acres, Irish potatoes 14,138 acres, tobacco 5,235 acres and vegetables harvested, 28,732 acres.

Most of the well known large dent hybrids from the midwestern states and a few of the southern late varieties are grown successfully for silage. Early maturing hybrids from Wisconsin and Minnesota are well adapted for grain. The early and late varieties are planted about the middle of May in the southern part of the state to early June in the northern part and the Berkshire hills.

Soil and climatic conditions in Massachusetts are favorable for growing corn. The usually ample rainfall and the general practice of fertilizing corn liberally favors a high average yield per acre.

The corn improvement program at this station last year consisted mainly of testing for yielding ability and maturity--seventy-five hybrids supplied by several state experiment stations. Fifty-five all-combination single crosses and 36 double crosses were compared in yield tests to measure their relative performance. Eleven inbred lines were crossed in all possible single cross combinations for this year's test. Other phases of corn breeding, such as are usually included in a corn improvement program were also carried on. The primary effort, however, was concentrated on the production of early maturing varieties for grain.

Sweet Corn

W. H. Lachman. (Report mailed to the Secretary.) The objectives of our sweet corn breeding program are the development of early, high quality, yellow sweet corn varieties that are adapted to Massachusetts. We hope to isolate smut and bacterial-wilt resistant types as well as those that resist attacks from the European corn borer.

To date our principal work has been the development of inbreds, several of which show considerable promise of being worthwhile parents of commercial corn. One of these has been named Mass. 32 and a very limited supply of seed is available for interested agencies. This is an early P-39 type that stands up well and has most of the characteristics of an excellent seed parent. Crosses with a number of testers made in 1945 should reveal some of the possibilities of this inbred as a parent in 1946.

A number of early, high quality inbreds have been made available to us by several other experiment stations and one farmers' co-operative. These have been crossed with a number of our inbreds and are now ready for testing.

I hesitate to include any more information in our report as our program is in its infancy and we do not know too much about it ourselves.

NEW HAMPSHIRE

NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION, Durham

Leroy J. Higgins. Due to a limited personnel and the necessity of covering all phases of agronomy, the Department of Agronomy has confined its corn improvement work to variety trials. Such trials were started in 1936 with the idea of finding out which were the best adapted and best yielding varieties of corn for silage and grain for New Hampshire. All seed lots have been tried for at least three seasons and in at least three randomized plots each season.

During the past four or five seasons, two varieties of each of the following groups have been used as standard checks:

Flints - Two high yielding local strains
Dent-flint hybrids - Maine B and Wisconsin 240
Dents - Cornell 11 and New Hampshire 500.

Since 1944 was a good corn year at Durham, the following data represents a season's results:

<u>Seed</u>	<u>No.</u>	<u>% Moisture Loss</u>			<u>Yield in Bu. per acre</u>		
		<u>Low</u>	<u>High</u>	<u>Ave.</u>	<u>Low</u>	<u>High</u>	<u>Ave.</u>
Local Flints	2	23.8	25.5	24.65	39.52	40.92	40.22
Dent-Flint Hybrids	3	26.0	28.7	27.20	50.88	53.63	51.82
Dents	2	27.9	31.8	29.85	58.44	63.40	60.92
Dent Hybrids	18	25.8	36.7	32.07	46.50	70.98	60.09
Totals	25	23.8	36.7	30.72	39.52	70.98	57.58
Highest yielding							
Dent hybrids	9	25.8	35.1	31.19	59.72	70.98	66.07

Unfortunately 1945 was a very poor corn year and resulting data were very unreliable. This was due to a late and wet spring, rodent damage before harvest and mechanical difficulties with a steam drier which ruined some of the samples. In spite of the above difficulties the following hybrids stood out: Maine B, Minhybrid 800, Mass. 62, Wisconsin 335 and Cornell 29-3. The open-pollinated variety, New Hampshire 500, a selection made in 1910 from Minnesota 13 for the eighth season was once again among the leaders.

Since three-fourths of about 16,000 acres of corn in New Hampshire is grown for silage purposes, silage trials are carried along each year with the grain trials. Cornell 29-3 and West Branch Sweepstakes were outstanding again in 1945. Ohio K24, Ohio C92 and Mass. 62 also looked promising.

New Hampshire has a growing season that ranges from only 90 days in the Northern area up to 135-140 days in the southeastern coastal area. At Durham the corn trials are planted from May 15 to the 20th. The silage corn harvests are made usually from September 1 up to the 10th and the grain harvests are made around the 15th of October.

NEW JERSEY

NEW JERSEY AGRICULTURAL EXPERIMENT STATION, New Brunswick

Field Corn

J. C. Anderson. The program for improving field corn at the New Jersey Station is being carried forward along two lines. The first of these is concerned with making new inbreds and the observation and testing of all inbreds and hybrids. A great deal of emphasis is concentrated on factors over and above yield. The qualities looked for are lodging resistance, high resistance or tolerance to corn borer, good forage production, and resistance to disease. There are so many hybrids which yield well that the basis for choice usually falls among the other characteristics.

The other phase of the program concerns the adaptation of inbreds and hybrids and might be designated "improved use of hybrids." Date of planting experiments have been run with two hybrids to study relation to corn borer. A preliminary experiment on rate and distribution is to be expanded this year to include two hybrids and three fertilizer treatments at four places in the state. A preliminary experiment on the adaptation of various inbreds and hybrids to the use of some of the new commercial weed killers is planned.

In both of these efforts the New Jersey Station has cooperated with other stations in exchange of breeding material and in carrying out cooperative testing programs which will enable the various stations to recommend hybrids to fit climate and soil conditions rather than being restricted to state lines. We hope to continue to be a part of this cooperative effort.

Sweet Corn

R. S. Snell. The following departments of the Station are conducting research on sweet corn: Vegetable crops (variety trials and research on cultural practices); Farm Crops (breeding and seed production);

Plant Pathology (wilt and smut resistance studies and seed treatment investigations--also smut control studies, particularly in relation to borer control); Entomology (borer and earworm control studies); Economics (experiments in marketing fresh sweet corn).

Sweet corn breeding is particularly concerned with early and medium early maturity combined with quality; ability to retain quality; early vigor, particularly in relation to early planting and disease and lodging resistance. Also exploitation of possibilities in non-tillering or light-tillering types, all for fresh corn market.

Several new early and medium early promising varieties from the breeding program are under continued trial; numerous new varieties are awaiting trial; and new inbreds are being selected and combined in the breeding program. Connecticut inbreds are being used extensively in breeding.

There is very much interest in participating in cooperative uniform and inbred trials in order to keep abreast of all breeding that is being done in adjoining states as well as to measure the effectiveness of New Jersey's own breeding program.

An attempt is being made to get production of certified hybrid sweet corn seed started in the state, and there is a great deal of interest in promoting as far as possible a general certified sweet corn seed program.

Dr. B. B. Pepper discussed the results obtained on controlling the European corn borer and ear smut on sweet corn as a result of dusting the corn with insecticides. These results are published in New Jersey Circular 487.

NEW YORK

NEW YORK STATE AGRICULTURAL EXPERIMENT STATION, Geneva

John Shafer, Jr. Last year a general statement was made about all the work on corn that was being done at Geneva. This year only the work being done in the Vegetable Crops Division will be discussed, since that is the work best known to the author.

In the Vegetable Crops Division three aspects of sweet corn production are under investigation. The effect of fertilizer ratios and fertilizer placement is being studied. Our experimental farm is sufficiently fertile so that there is little or no response to fertilizer. Two experiments on outlying farms this past year gave conflicting results.

The major aims of the breeding work have been reduced to two:

- (a) A hybrid of Golden Cross quality and yield, but about one week earlier.

(b) A non-tillering hybrid of Golden Cross quality and yield.

The backcrossing technic is being applied to both phases; in addition, good early inbreds are sought by inbreeding variety crosses of an early variety times a high quality variety.

The resistance to corn borer of various hybrids is being tested. Natural infestation being low, hand infestation is used. At present, the chances of finding an adequately resistant hybrid look poor. If a source of resistance could be found, a breeding program would be started.

OHIO

OHIO AGRICULTURAL EXPERIMENT STATION, Wooster

G. H. Stringfield. Breeding and testing: The isolation of new inbred lines is being continued in both northeastern and southwestern Ohio. Single crosses constitute most of the parent material. The principal objective is to concentrate good germ plasm already on hand into fewer inbred lines. Typically the isolates from single crosses are first outcrossed in the S_2 or S_3 generation to the parent single cross for testing. Later the survivors are usually outcrossed to an unrelated single cross. This single cross is usually one parent of a standard double cross.

The study of the contribution of currently used inbred lines to tolerance of thick stands has given very little in positive results.

Studies of the relative suitability of hybrids for mechanical harvest show easily measurable differences.

Field performance tests of 30 entries each were conducted at thirteen locations. A two-year summary of this project was published as Special Circular 71.

Cultural studies: A manuscript has been prepared reporting five years' work with rates of planting corn hybrids. Current studies of rates of planting inbred lines indicate that most foundation fields are planted too thin. Studies with row spacing are being continued.

Nutrition: The accumulation of mineral elements in lines and hybrids under field and greenhouse conditions is being studied by Dr. J. D. Sayre. The quantitative measurement of K, Ca, Mg, P, B, Fe, Mn, Cu, Si, and Al in the plant tissues is being measured by spectrographic techniques.

Gravel cultures are being used in studies of mineral nutrition of hybrids under carefully controlled conditions. Radioactive isotopes are used in these cultures to trace elements through the plant tissues.

Entomology: Extensive studies of the biology of the European corn borer and of the resistance of inbred lines and hybrids to the corn borer are under way by Dr. C. R. Neiswander.

Sweet corn: The main effort has been to combine the Bantam type quality with a large productive flint.

G192 came from P39 x early flint
51K1 and 51K2 are from P51 and a Kutias inbred
El3 is from P14 x Early Adams

A new group of inbreds are mostly from selfing and backcrossing in single crosses. Apparently promising new inbreds of high quality are: No. 52 from 51K1 x El3; No. 26 from G192 x El3; No. 28 from El2 x El3; No. 180 from (G192 x P14) x G192.

A number of crosses are being made by Dr. J. B. Park at Weslaco, Texas this winter for 1946 testing.

Ohiogold 1 (P39 x P14) x 51K2 is certified in Ohio.

ONTARIO

CENTRAL EXPERIMENTAL FARM, Ottawa

Wm. Ferguson. The Division of Horticulture at the Central Experimental Farm concerns itself with practically all vegetable plants suitable for eastern Canada as well as many which are grown in western Canada. Included among these vegetable plants, of course, is sweet corn. A number of strains of sweet corn are maintained by the Division of Horticulture at the Central Experimental Farm, namely Banting, Dorinny, Goldban and Pickaninny. Some of these have been originated at the above Station and are probably known to some of the corn workers in the United States.

In view of the fact that the Central Experimental Farm is a Dominion Department of Agriculture organization and has branch stations throughout Canada where all the work must be viewed from a national standpoint and for that reason some of the corn varieties mentioned above have been developed with an eye to material which would be suitable for northern and western regions where earliness is a very important factor.

In addition sweet corn trials have always been part of our work and in this connection a number of the Connecticut sweet corn hybrids have been tested not only at the Central Experimental Farm but also at a number of the branch stations throughout the country. In many regions of the country the early hybrids have shown exceptionally good results with respect to quality, size and the very important factor of earliness. However, only in the more southerly regions were the early-medium season and medium season hybrids satisfactory from the standpoint of earliness.

It is felt that there is much room for further breeding work with corn in order to produce strains which will give the desired quality and yield along with the very necessary earliness which is required in most of our regions.

PENNSYLVANIA

PENNSYLVANIA AGRICULTURAL EXPERIMENT STATION, State College

L. L. Huber. (Report presented by B. L. Seem.) The objectives of the corn breeding program in Pennsylvania remain essentially the same as originally outlined. Within the year, however, the breeding program has been more closely integrated into a larger program in which the emphasis is on more efficient corn production. Along with breeding, the problems of corn fertilization, planting rates adjusted to fertility levels, crop management, weed control, nutritive differences among strains and production costs will be given more adequate attention.

In the breeding program increased emphasis is being given to selection for less susceptibility to drought and cold. Soil texture and the low water-holding capacity of soils in many parts of Pennsylvania, presents an important drought problem even in years of normal rainfall. Experience of the past three years points to the need of increased attention to root systems. Loose textured soil, heavy storms and strong wind together with insect damage to roots have caused much lodging resulting in a serious reduction in yields as well as increased costs of harvesting. Tests in 1945 showed an unusual amount of early stalk breakage directly associated with European corn borer damage. Better stalk quality is imperative in the Southeastern areas. Incidence of stalk rot, particularly under certain conditions and in certain areas, indicates the need for more information in the field of pathology. Symptoms of plant nutrient deficiencies and the differential performance of inbreds on various fertility levels suggest their serious consideration in the breeding program. Studies on the differential in nutritive value of hybrids have been initiated.

All possible single cross combination tests were conducted at State College and Manheim in 1945. Combination fertilizer level and hybrid tests were conducted in many sections of the State in cooperation with farmers, vocational teachers of agriculture, county agricultural agents, farm cooperatives and the U.S.D.A. Such tests will be continued and expanded in 1946.

Cooperating in the corn program are C. C. Wernham, B. F. Coon, A. C. Richer, R. A. Miller, B. L. Seem and M. D. John.

RHODE ISLAND

No representative present.

U. S. DEPARTMENT OF AGRICULTURE

PLANT INDUSTRY STATION, Beltsville, Md.

Merle T. Jenkins. The inoculation experiments with Helminthosporium turcicum in cooperation with Dr. Charlotte Elliott constituted a major portion of the 1945 corn improvement program at Beltsville. The inoculation experiments may be classified into two main categories as follows:

- (a) Breeding experiments to transfer and concentrate resistance.
- (b) Tests of additional corn strains to locate new and better sources of resistance.

The breeding experiments covered about two acres and consisted mainly of segregating material backcrossed one or two generations. Twenty different inbred lines were used as recurrent parents in the backcrossing program. With the second generation of backcrossing large differences became apparent among the various nonrecurrent parents used as sources of leaf blight resistance. The resistance contributed by CI.14, Oh02, Ky27, CI.43, K4 and K201C proved unsatisfactory and most of the backcrossed progenies tracing to these lines were discarded. The resistance contributed by CI.23 and Mo21A seemed to carry over and hold up best under recurring backcrossing. New series of backcrosses were started in 1945 using NC34, Ky114 and K175, lines outstanding in the 1944 tests as additional sources of resistance.

The material included in the testing program was divided into eight groups or experiments. Four experiments contained inbred lines and four contained hybrids and varieties. Both the inbred lines and the hybrids were grouped mainly on the basis of their seasonal requirements.

In general, as in 1944, the earlier-maturing strains tended to be more susceptible than those maturing later in the season. The Minnesota inbred line A71 was the outstanding exception to this general situation and indicates that there is no necessary physiological association between early maturity and susceptibility. This is the first early-maturing inbred line tested to date which appears to be highly resistant to Helminthosporium turcicum. In many respects A71 is the most interesting line identified in the 1945 tests.

Other lines highly resistant in 1944 were CI.15, (Ky36-11)-1-3-1, (Ky41-181)-1-1, (Ky41-175)-2-1 and GT 152.

Three varieties of foreign origin were rated as more resistant than the native varieties tested.

VERMONT

No representative present.

VIRGINIA

VIRGINIA AGRICULTURAL EXPERIMENT STATION, Blacksburg

P. M. Phillippe. The use of seed of corn hybrids has and still is rapidly replacing that of open pollinated corns. In 1942, 9.0 percent of the corn crop of Virginia was planted to corn hybrids; in 1943, 15.0 percent; in 1944, 25.0 percent; and in 1945, 40.0 percent of the State's corn acreage was hybrid. Predictions for 1946 are that 65 to 70 percent of all corn planted will be hybrids. The average of certified hybrid seed as reported by the Virginia Seed Certification Commission is as follows:

1942	- 60	acres	certified
1943	-175	"	"
1944	-450	"	"
1945	-668	"	"

Present outlook would indicate that the average of certified hybrid seed produced in Virginia in 1946 would exceed 1500 acres.

Testing and Breeding Program in the State: The corn breeding and development program in Virginia is financed largely by Bankhead-Jones funds. The project, in its present form, was initiated by M. H. McVicker in 1943. A somewhat less extensive project was started in 1942 by J. D. Guthrie. However until 1943 the State of Virginia did not have a coordinated corn breeding program. It is true that the Glade Spring Station (southwest Virginia) and the Holland Station (cotton-peanut section) started inbreeding as far back as 1938. A few of the lines developed by these stations are now being included in single cross tests.

Testing:

A. Double cross hybrids. Each year the Virginia Agricultural Experiment Station conducts a series of tests, in all sections of the State, to furnish information relative to corns offered for sale in the State and to furnish information regarding their own experimental hybrids. As far as closed pedigree hybrids are concerned the Virginia Agricultural Experiment Station has adopted a policy almost identical with that of the Tennessee Agricultural Experiment Station. In brief the policy set forth the following requirements:

I. It does not test -

a. Hybrids of unknown pedigree

b. Standard hybrids under private-brand names

- c. Hybrids that can offer no reasonable hope of advantage because they are closely related to others known to be unsatisfactory under Virginia conditions.
- d. Experimental commercial hybrids.

II. It does test -

- a. The products of its own breeding program.
- b. The promising products of similar programs in other states.
- c. Some of the hybrids that are offered for sale in Virginia.
- d. Commercial hybrids from producers in Virginia or elsewhere which can be shown to have probable value to Virginia farms.

The policy has been criticized by some commercial organizations, but by and large has proven very workable. Each year the results of these tests are published in bulletin form. County agents, other agricultural workers, and farmers send in hundreds of letters, starting in November, asking when they can expect the results of the test.

- B. Single cross tests. Each year at least one single cross test is planted. The information gained is used in predicting possible double cross data. Three single cross tests will be planted in 1946 at different locations in the State.
- C. New lines. In addition to lines developed at Holland and Glade Spring (developed from Rose and Mountain White Dent) we have several S_3 and S_2 lines from a wide variety of open pollinated corns.
- D. Second cycle lines. All of these lines are in the S_2 only. They embody southern and corn belt lines.
- E. Convergent improvement lines. This phase of the program was initiated in the spring of 1945. For the most part the aim is to develop recovered lines with good blight resistance.

Related Tests in Progress: Spacing tests comparing hybrids and open pollinated corns; fertilizer tests comparing hybrids and open pollinated corn, single cross and inbred lines; effect of elevation on certain measurable characteristics of both plant and ear.

On the basis of single cross tests and limited topcross tests we have decided the following lines have promise in Virginia:

Yellow - CI.7, CI.3, Kys, K4, Mo940, Mo557, T8, Oh28, 38-11, L317, and P8.

White - 33-16, Ky27, Ky39, Ky49, T13, T61, T85, NC42, Ky21, L24, and L25.

WEST VIRGINIA

WEST VIRGINIA AGRICULTURAL EXPERIMENT STATION, Morgantown

J. C. Cartledge. The corn improvement program at West Virginia Agricultural Experiment Station has been continued through 1945 under stringent limitations of personnel, land, and labor. Breeding operations included maintenance of inbred stocks, a limited amount of convergent improvement work and making up single and double crosses for old and new experimental hybrids.

Single cross tests were grown at the State farms at Morgantown and Lakin, and the U. S. D. A. uniform midseason single cross at Wardensville. Hybrid yield trials were grown on five State farms, as well as 21 smaller county trials in 16 counties.

The combinations Hy.WF9 x L317.K155 and WF9.38-11 x L317.K155 (West Virginia Experiment Hybrid Nos. 1310 and 1311) showed promise in U.S. 13 or slightly later territory. A new medium-early hybrid, West Virginia Experimental Hybrid No. 1194 (51A.WF9 x WV5.WV12) has been released as W. Va. B-25, and seems capable of taking over the acreage formerly planted to Ohio W-17.

Adequate increase of foundation stocks for the W. Va. B-hybrids is still in part an unsolved problem, but certified seed production is expanding through cooperation with the W. Va. Associated Crop Growers. A report on the 1945 yield trials, with a revised list of recommendations for W. Va. growers, will appear on February 15 and will be sent to the members of the Northeastern Corn Conference.

* * * * *

Following the presentation of reports G. H. Stringfield and John Shafer discussed remarks made by Dr. Cartledge on the differential response of different hybrids to different planting rates. Mr. Stringfield's data from Ohio have not indicated any differential response. B. L. Seem indicated that Pennsylvania has a test to determine differential response but the data have not yet been analyzed.

W. R. Singleton inquired about the heavy infestation of Southern corn rootworm reported to have occurred in some areas in Pennsylvania and Ohio during the past season. L. L. Huber indicated that a heavy infestation had occurred in certain areas of Pennsylvania and G. H. Stringfield indicated that heavy infestation also had occurred in parts of Ohio.

At 4 o'clock the sweet corn and field corn workers separated for their group meetings.

Sweet Corn Group Meeting

The sweet corn workers discussed and approved the report of the sweet corn committee given on pages 25 and 26.

Field Corn Group Meeting

The field corn workers discussed the seed situation with relation to the uniform tests of single crosses prepared for testing in 1946. Seed was prepared for five uniform tests. The lines included in each test are shown below.

<u>Wis. Hyb. 412</u>	<u>Ohio Hyb. M15</u>	<u>Iowa Hyb. 939</u>	<u>U.S. Hyb. 13</u>	<u>Ill. Hyb. 448</u>
<u>Maturity Group</u>	<u>Maturity Group</u>	<u>Maturity Group</u>	<u>Maturity Group</u>	<u>Maturity Group</u>
Wis. 18	Oh51A	N6	WF9	Kys
" 83	A	M14	L317	K4
" 703	A165	A	Hyl	K155
CC1	A158	WF9	187-2	K201C
CC4	Ia. Y82	CC10	Oh07	38-11
CC8	" Y83	CC24	Oh40B	L317
A148	" 153	CC28	Il59	CI.3A
MS1311	CC1	Oh28	P8	CI.7
NY3	CC2	Oh51A	J30	CI.21E
Quebec 9	CC28	I205	J47	T8
" 83				

Seed of the single crosses among the inbred lines in the Wisconsin Hybrid 412 maturity group was produced by R. G. Wiggans and H. M. Yegian; that among the lines in the Ohio Hybrid M15 maturity group by L. L. Huber and B. L. Seem; that among the lines in the Iowa Hybrid 939 maturity group by O. E. Nelson, Jr. and L. L. Huber; that among the lines in the U. S. Hybrid 13 maturity group by O. E. Nelson, Jr. and J. C. Anderson; and that among the lines in the Ill. Hybrid 448 maturity group by R. G. Rothgeb.

Attention then was devoted to the selection of inbred lines to be included in the 1947 uniform tests of single crosses. Four maturity groups were decided on and the lines selected for each of these maturity groups are shown below.

<u>U. S. Hyb. 13</u>	<u>Iowa Hyb. 4059</u>	<u>Ohio Hyb. M15</u>	<u>Wis. Hyb. 412</u>
<u>Maturity Group</u>	<u>Maturity Group</u>	<u>Maturity Group</u>	<u>Maturity Group</u>
WF9	WF9	Oh26	CC4
Hy	Hy	Oh51	CC8
38-11	L289	A	CC24
L317	I205	A71	CC37
Oh07A	CC28	A158	Ia.153 (Minn. Strain)
Oh41	CC35	CC1	A96
Cl02	R2	CC5	Wis. 16
Cl03	A	Pa. (3 lines)	S.D. (2 lines)
K230	Oh51A	WF9 (Wis. Sel.)	Pa. (1 line)
Ia. (1-SSS line)	Oh56A		

Meeting adjourned at 5:40 p.m.

In the evening the group attended an informal banquet following which the various committees met to discuss the programs and prepare reports for presentation at the morning session on February 5.

MORNING MEETING, TUESDAY, FEBRUARY 5

Meeting was called to order by Vice-Chairman L. L. Huber at 9:00 a.m. The first item of business was the assignment of seed production of the single crosses for the 1947 uniform tests. These assignments are listed below.

Wis. Hyb. 412 maturity group - Massachusetts and New York

Ohio Hyb. M15 maturity group - Pennsylvania

Iowa Hyb. 4059 maturity group - Connecticut

U. S. Hyb. 13 maturity group - New Jersey and Maryland

The next item of business was to arrange for seed distribution and location of the 1946 tests.

Seed for tests of the single crosses of the Wis. Hyb. 412 maturity group was allocated to Massachusetts, New York, Minnesota and Pennsylvania and the preparation and distribution of the seed was assigned to R. G. Wiggans.

Seed for tests of the single crosses of Ohio Hybrid M15 maturity was tentatively allocated to Massachusetts, Pennsylvania, New York, Ohio, and West Virginia and the preparation and distribution of the seed for these tests was assigned to L. L. Huber.

Seed for tests of the single crosses of Iowa Hybrid 939 maturity was tentatively allocated to West Virginia, New Jersey, and Pennsylvania and the preparation and distribution of the seed was assigned to H. M. Yegian.

Seed for tests of the single crosses of U. S. Hybrid 13 maturity was tentatively allocated to Connecticut, Pennsylvania, New Jersey, Delaware, and Maryland and the preparation and distribution of the seed was assigned to J. C. Anderson.

Seed for tests of the single crosses of Illinois Hybrid 448 maturity was tentatively allocated to Maryland, Pennsylvania, and Virginia and the preparation and distribution of the seed was assigned to R. G. Rothgeb.

Vice-Chairman L. L. Huber then called for the reports of the standing committees. The "Committee on Uniform Tests of Field Corn" and

the "Committee on Statistical Designs for the Uniform Comparisons" had met jointly and prepared a joint report which was presented by C. E. Phillips. The report follows.

JOINT REPORT OF THE
COMMITTEE ON STATISTICAL DESIGNS FOR THE UNIFORM COMPARISONS
AND THE COMMITTEE ON UNIFORM TESTS OF FIELD CORN

The committees submit the following recommendations

For the all-combination single-cross tests

1. Not more than 10 inbreds should be included in any one maturity group in any one year.
2. A 7 x 7 lattice square design with four replications should be used in all comparisons by all cooperators.
3. A different randomization should be used for each test in a maturity group. The planting plan should be prepared by the person responsible for the distribution of the seedstocks.
4. Wherever possible 2 x 10-hill plots should be used.
5. Statistical analysis of the data should be made by each co-operator.
6. A summary of the tests in each maturity group should be made by a person to be appointed by the conference chairman.
7. The following data should be secured:
 - a. Yield in bushels per acre--Yield should be reported as shelled grain, corrected to 15.5 percent moisture.
 - b. Percent moisture at harvest--Moisture should be determined on a composite sample made up of ten ears from each replication.
 - c. Stalks broken below ear (percent by count)
 - d. Root lodging (percent by count)--Any plant less than 60 degrees from the horizontal would be counted as lodged.
 - e. Planting and harvesting dates.

For the uniform double cross tests

1. These tests should be limited to 25 entries in any one year.
2. A 5 x 5 lattice square design with three replications should be used in all comparisons by all cooperators.

3. Not more than six entries should be commercial closed pedigree hybrids. For the present these should be two each from three commercial hybrid seed companies and should be submitted for the test by the companies on invitation of the individual making up the test. Choice of closed pedigree hybrids should be left to each company.

4. Requirements as to randomization, statistical analysis, summary and data should be the same as for the single cross tests.

5. The following hybrids are recommended for inclusion in the 1946 U.S. 13 maturity uniform double cross test:

U.S. 13
Ohio C92
(WF9 x P8) x (I159 x Oh40B)
Ohio C12
Ohio 3143
N. J. 2

Claude E. Phillips
Oliver E. Nelson, Jr.
Hrant M. Yegian

The report was actively discussed and certain modifications relating to the recommendations for computing yields were accepted by the committee. Mr. Phillips then

MOVED: That the revised committee report be adopted.

Seconded and passed.

A "Report on Uniform Double Cross Test (U.S. 13 Season)" compiled by O. E. Nelson, Jr. comprised a part of the report of the above committee. This report is not included here as it is available in mimeographed form from the Connecticut Agricultural Experiment Station, New Haven, Connecticut. Dr. Nelson discussed the uniform test of double crosses with particular reference to the method of summarizing yield performance in terms of rank. The transformations given by Fisher and Yates on page 50 of "Statistical Tables for Biological, Agricultural and Medical Research" were utilized for this purpose.

The Chairman then called for a report of the Committee on Uniform Designation of Hybrids. The committee report was presented by J. C. Anderson, committee chairman. The report is given below.

REPORT OF THE COMMITTEE ON THE UNIFORM DESIGNATION OF HYBRIDS

The Northeastern Corn Improvement Conference was organized in February, 1945 at New Haven, Connecticut. The desirability of adopting a regional program of developing and testing corn hybrids was agreed on, and committees were appointed to take care of the various phases of such a program.

The committee on the naming of hybrids for the Northeastern Corn Improvement Conference suggests a few reasons for adopting a uniform system of designating or naming hybrids for this area. Such a system will reduce confusion in hybrid nomenclature for farmers and breeders by recognizing adaptation areas rather than state boundaries. The merits of hybrids will be recognized for their worth without prejudice of state pride and breeders will tend to be less biased in the recognition and selection of hybrids to be promoted by virtue of the fact that each breeder will have a share in the development of that hybrid. Breeders will be concerned for all farmers of the Northeast rather than solely for those in their own state.

The committee on naming such hybrids as will be developed through the cooperation of the various members submits for adoption the system described below.

I. Regional Designation

- A. A trade name, Pilgrim or some other agreeable to the group, will be the first unit of the name assigned to hybrids released for commercial production. (e. g. Pilgrim 450).
- B. Hybrids will receive regional designation only when released by the conference for commercial production. Prior to this they will be known by their state experimental number.
- C. The trade name and trade mark will be copyrighted with the Federal authorities.

II. Relative Maturity

- A. A system of three (3) digit numbers will be used to designate relative maturity of the released hybrids. The range of numbers from shortest to longest will be 100-1000 by 5-day intervals, 100 numbers to each interval. Maine might use the 100 and 200 series while Maryland might use those of 900 and 1000. The range of maturity thus covered would be from 80-130 days.

III. Standard for Relative Maturity

- A. Relative maturity will be determined in those areas in which the hybrid needs nearly all the growing season to mature grain. The figure for relative maturity will be the average number of days from seedling emergence to moisture content in the grain of 35 percent.

IV. Designation of Hybrids

- A. Hybrids will be given conference designations by consecutive numbers within their maturity group in order

of release. The designation of released hybrids will be made through a clearing house which will be set up to avoid duplication of numbers. The Division of Cereal Crops has volunteered its services in this capacity. White corn hybrids will receive the regular number plus the latter W.

Respectfully submitted,

R. G. Wiggans

L. L. Huber

J. C. Anderson, Chairman

The report was followed by a lively discussion on the maturity designations suggested and the suggested method of determining maturity classifications. Following these discussions Dr. Anderson

MOVED: That the report be adopted and that the committee be instructed to meet with the Committee on Uniform Designations from the North Central Corn Improvement Conference at Columbus, Ohio in connection with the meetings of the American Society of Agronomy and discuss with that committee the possibility of adopting uniform maturity designations which would be applicable to both the Northeastern and North Central regions and to bring back definite recommendations on maturity designations and a uniform name at the next meeting of this conference.

Seconded and passed.

Dr. Huber next called for the report of the Committee to Formulate a Uniform Policy on the Release and Distribution of Inbred Lines. In the absence of R. G. Wiggans, Chairman of this committee, a tentative report was submitted by J. C. Anderson. This report is shown below.

REPORT OF THE
COMMITTEE TO FORMULATE A UNIFORM POLICY ON
THE RELEASE AND DISTRIBUTION OF INBRED LINES

In the absence of the Chairman the other three members recommend:

1. Continued exchange of inbred material between members of the Northeastern Corn Improvement Conference.
2. That there be no release of inbred lines without consent of originator.
3. Acceptance of this report until more definite action can be taken.

Merle T. Jenkins

R. G. Rothgeb

J. C. Anderson

Dr. Anderson

MOVED: That the report be adopted.

Seconded and passed.

The report of the Sweet Corn Committee was next called for by Chairman Huber. The report was presented by W. R. Singleton, Committee Chairman. It follows.

REPORT OF THE COMMITTEE ON SWEET CORN INVESTIGATIONS

All sweet corn breeders in the Conference have replied to question regarding most important topics to be discussed. The consensus is that quality is the most important problem of the sweet corn breeders. Better methods of testing quality are needed. It is possible to get a fairly accurate estimate of pericarp toughness by means of the puncture test. A low puncture reading indicates tender pericarp. This method is more objective than the practice commonly followed of chewing either the raw or cooked ears. However, the puncture test method requires more time and attention to conduct a trial and for this reason is not used as widely by sweet corn breeders as the method of chewing the corn to estimate pericarp tenderness.

Another attribute of quality, sweetness or sugar content, can be determined chemically or a good estimate can be obtained by eating either raw or cooked ears. The ease of testing makes the second method more widely used. The third factor in quality, flavor, can only be determined, for the present at least, by tasting the corn.

Most tests on sweet corn quality made by plant breeders are made on corn freshly picked. What is equally, and perhaps more, important is whether different varieties are better able than others to maintain their original quality upon keeping for several hours or days after picking. Clearly, more information is needed on methods of testing sweet corn quality, of corn freshly picked and after standing several hours, also quality of canned and frozen corn. Some of the sweet corn breeders feel this is a problem more for home economists than for sweet corn breeders. Perhaps more progress might be made by a laboratory not primarily interested in sweet corn breeding. None of the sweet corn breeders is prepared to attempt an elaborate quality testing program.

Dr. Shafer of Geneva inquires whether it is possible to get any information on quality by studying mature seeds. Does anyone know of any studies on this?

A quality test card has been in use at New Haven since 1942 with fairly good results. The following items are mimeographed on a 4x6 card.

SWEET CORN QUALITY TEST

Name of Tester _____ Date _____

Varieties Tested

1 _____
2 _____
3 _____

RATING

	Best	2nd	Poorest
Tenderness	:	:	:
Sweetness	:	:	:
Flavor	:	:	:
General Rating	:	:	:

Remarks _____

These cards are given to various members of the farm crew ("testers") along with two or three samples of sweet corn for testing. The testing time covers a period of about six weeks of the summer when green corn is being picked. Comparisons are made always between varieties maturing in the same season. Often several testers try the same two varieties. There is usually good agreement between different testers so this method has some merit. It has enabled us to discard hybrids on the basis of such tests alone.

The quality angle in sweet corn is further emphasized by the recent trend in sweet corn marketing. Until recently it took several days for green corn to reach the ultimate consumer after picking. With little or no refrigeration the good quality was lost rather rapidly and all corn was mediocre to poor when eaten even if first class in quality when picked. A change in marketing has begun and will continue until there will be a very short period of time between picking and eating with the corn refrigerated during this period. Different experiments in marketing were conducted in 1945 with great success. More will undoubtedly be tried in 1946.

With improvement in marketing, quality will assume a more important place in the sweet corn breeding program.

Mr. M. T. Lewis of Pennsylvania reports that corn plants in his experimental plots were all destroyed by larvae of the 12 spotted cucumber beetle feeding on the roots. Is this a new menace to corn production?

Smut is at present the most important sweet corn disease and more research is desirable. What is particularly needed is a means of infecting plants with smut so that susceptible and resistant lines may be isolated.

W. Ralph Singleton, Chairman

Dr. Singleton

MOVED: That the report be adopted.

Seconded and passed.

Chairman Huber then asked Dr. Singleton to lead a discussion on methods of testing inbred lines. Dr. Singleton discussed the results of the Connecticut experiments with sweet corn presented in Connecticut Bulletin 940. The group spent about an hour discussing the relative merits of early versus late testing.

Chairman Huber then called for a report of the Committee on Permanent Organization of the Northeastern Corn Improvement Conference. This report, which was presented by R. G. Rothgeb, follows.

REPORT OF THE
COMMITTEE ON PERMANENT ORGANIZATION OF
THE NORTHEASTERN CORN IMPROVEMENT CONFERENCE

The committee appointed by the Chairman to suggest a desirable form of organization makes the following recommendations:

1. Name. The name of the organization shall be "The Northeastern Corn Improvement Conference."
2. Membership. The membership shall be composed of all interested research workers, corn breeders, and extension men of State and Federal agencies operating in the following states, the directors of which have approved the conference:

Connecticut	New Jersey
Delaware	New York
Maine	Pennsylvania
Massachusetts	Rhode Island
Maryland	Vermont
New Hampshire	West Virginia

Representatives from neighboring states as well as from the Dominion of Canada are cordially invited to attend meetings and take part in the programs.

3. Officers. The conference shall be guided by an Executive Committee consisting of a Permanent Secretary who shall be the Principal Agronomist in charge of Corn Investigations, Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture; a Chairman and a Vice-Chairman each to serve for one year, the Vice-Chairman being elected each year and automatically becoming Chairman the following year; and a member-at-large who shall be the retiring Chairman.

4. Meetings. The Executive Committee shall arrange the time and place for a regular annual meeting and other field meetings if it seems desirable. The annual meeting shall include a business session, preferably to be held toward the end of the annual meeting. It is suggested that the annual meeting be held in early February.

Respectfully submitted,

J. C. Anderson
W. R. Singleton
R. G. Rothgeb, Chairman

Dr. Rothgeb

MOVED: That the report be approved.

Seconded and passed.

ELECTION OF OFFICERS

The committee report on the organization of the Northeastern Corn Improvement Conference provided for the annual election of a new Vice-Chairman who automatically became Chairman the following year and member-at-large the third year. R. G. Rothgeb was elected Vice-Chairman for the ensuing year.

The question arose as to the delegation of responsibility for obtaining seed of the inbred lines to be used in the 1947 uniform tests. Dr. Huber appointed R. G. Rothgeb chairman of the committee to collect the seed for these uniform tests and asked him to select the other two members of the committee.

G. H. Stringfield expressed a word of warning and caution regarding the handling of unreleased inbred lines. He emphasized that it is necessary to respect the desires of originating stations with regard to their inbred lines if the conference succeeds in promoting maximum cooperation in the interchange of desirable breeding material prior to its release to the general public.

Inasmuch as the exact status of numerous inbred lines seems to be in doubt, the Secretary offered to obtain up-to-date information on the lines that have been released from each State. These lines are listed on the following pages.

LIST OF INBRED LINES OF CORN RELEASED TO PRIVATE GROWERS FROM STATE AND FEDERAL AGENCIES

ALABAMA AGRICULTURAL EXPERIMENT STATION, Auburn

No lines released

ARIZONA AGRICULTURAL EXPERIMENT STATION, Tucson

No lines released

ARKANSAS AGRICULTURAL EXPERIMENT STATION, Fayetteville

No lines released

CALIFORNIA AGRICULTURAL EXPERIMENT STATION, Davis

No lines released.

COLORADO AGRICULTURAL EXPERIMENT STATION, Fort Collins

No lines released

CONNECTICUT AGRICULTURAL EXPERIMENT STATION, New Haven

Field corn lines

C102	(From Lancaster Surecrop)
C103	(" " ")
C104	(From Lang's Champion)
C105	(From Miscellaneous, Purple Flour x Early Yellow Dent)

Sweet corn lines

C3	C22	C31-2
C4	C23	C42
C6	C27	C88
C13	C30 (= P39-10)	
C15	C31-1	

Lines for limited release in 1946

C8	C40	C95
C17-2	C81	

DELAWARE AGRICULTURAL EXPERIMENT STATION, Newark

No lines released

FLORIDA AGRICULTURAL EXPERIMENT STATION, Gainesville

Field corn lines

F1
F2
F3
F4

GEORGIA AGRICULTURAL EXPERIMENT STATION, Experiment

No lines released

GEORGIA--UNIVERSITY OF GEORGIA, Athens

No lines released

GEORGIA COASTAL PLAIN EXPERIMENT STATION, Tifton and U. S. DEPARTMENT OF AGRICULTURE, Cooperating

No lines released

IDAHO AGRICULTURAL EXPERIMENT STATION, Moscow

No lines released

ILLINOIS AGRICULTURAL EXPERIMENT STATION, Urbana

Field corn lines

A	Hy2	4226	R2
B*	R4	4451*	R30 (white)
K	M14	5120	
L	90	5120B	
Hy	4211*	5675*	

Sweet corn lines in current commercial use **

Illinois	Country	Gentleman	Inbred	5
"	"	"	"	10
"	"	"	"	6
"	"	"	"	8
"	"	"	"	18b
"	"	"	"	27a
"	"	"	"	31a
"	"	"	"	44b
"	"	"	"	47a
Illinois	Narrow Grain	Evergreen	Inbred	11
"	"	"	"	13
"	"	"	"	14
"	"	"	"	55
Illinois	Golden	Inbred	73c	
"	"	"	101q	
"	"	"	87a	

INDIAN AGRICULTURAL EXPERIMENT STATION, Lafayette and U. S. DEPARTMENT OF AGRICULTURE, Cooperating

Field corn lines

<u>Yellow</u>		<u>White</u>	
36	WF9	33-16	K6 (From Kansas)
Tr	38-11	H21	
L9*	Kys (From Kansas)	H22	
Fe*	H5 (From Illinois and Minnesota)	H23	

Sweet corn lines

P39	P51	P22
P39A	P51B	
P39C*	P14	

Popecorn lines

Sg 16 (From Kansas)	Sg 32 (From Kansas)
Sg 18 (" ")	SA 24 (" ")
Sg 30A (" ")	

* Obsolete - Seed no longer maintained by the originating station.

** Other lines have been released but are no longer used. All inbreds are released under contract with the Board of Trustees of the University of Illinois and their use is restricted.

IOWA AGRICULTURAL EXPERIMENT STATION, Ames and U. S. DEPARTMENT OF AGRICULTURE, Cooperating

Field corn lines

Ial53	I234	KB397	WD456
I159	L289	Mc401	Pr
I197	L317	Os420	ITE701
I205	B1345	Os426	
I224	B1349	Cl 447	

IOWA AGRICULTURAL EXPERIMENT STATION, Ames

Sweet corn lines

<u>Evergreen</u>	<u>Country Gentleman</u>	<u>Golden</u>	<u>Golden Country Gentleman</u>
191	1445	45	2508
3001	1627	60	2730
3005	1612	1804	
3006	900	2021	
	4011	IP39	

KANSAS AGRICULTURAL EXPERIMENT STATION, Manhattan and U. S. DEPARTMENT OF AGRICULTURE, Cooperating

Field corn lines (Released Feb. 1946)

K55 (white)
K64 "
K155 (yellow)
K201 "

Popcorn lines (Released Dec. 1945)

Sg 16 Sg 32
Sg 18 SA 24
Sg 30A

KENTUCKY AGRICULTURAL EXPERIMENT STATION, Lexington

No lines released

LOUISIANA AGRICULTURAL EXPERIMENT STATION, Baton Rouge and U. S. DEPARTMENT OF AGRICULTURE, Cooperating

No lines released

MARYLAND AGRICULTURAL EXPERIMENT STATION, College Park

Sweet corn line

H84

MAINE AGRICULTURAL EXPERIMENT STATION, Orono

No report.

MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION, Amherst

Sweet corn line

Mass. 32

MICHIGAN AGRICULTURAL EXPERIMENT STATION, East Lansing

No lines released

MINNESOTA AGRICULTURAL EXPERIMENT STATION, St. Paul

Field corn lines

C11 (Yellow)	C20 (White)	C46 (Yellow)
C14 "	C41 (Yellow)	C49 "
C15 (White)	C42 "	C50 "
C16 "	C43 "	B164 "
C19 "	C44 "	

Sweet corn lines

C38 (Yellow)	C78 (Yellow)	C5-30 (White)
C42 "	C220 (White)	
C43 "	C224 "	
C77 "	C1-30 "	

Pop corn

C1-29

C6-29

MISSISSIPPI AGRICULTURAL EXPERIMENT STATION, State College and U. S.
DEPARTMENT OF AGRICULTURE, Cooperating

No lines released

MISSOURI AGRICULTURAL EXPERIMENT STATION, Columbia and U. S. DEPARTMENT
OF AGRICULTURE, Cooperating

Field corn lines

G

L3

MONTANA AGRICULTURAL EXPERIMENT STATION, Bozeman

No lines released

NEBRASKA AGRICULTURAL EXPERIMENT STATION, Lincoln

Field corn line

N6

NEVADA AGRICULTURAL EXPERIMENT STATION, Fallon

No lines released

NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION, Durham

No lines released

NEW JERSEY AGRICULTURAL EXPERIMENT STATION, New Brunswick

No lines released

NEW MEXICO AGRICULTURAL EXPERIMENT STATION, State College

No lines released

NEW YORK AGRICULTURAL EXPERIMENT STATION, Ithaca

No lines released

NEW YORK STATE AGRICULTURAL EXPERIMENT STATION, Geneva

No lines released

NORTH CAROLINA AGRICULTURAL EXPERIMENT STATION, Raleigh and U. S. DEPARTMENT OF AGRICULTURE, Cooperating

No lines released

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION, Fargo

No lines released

OHIO AGRICULTURAL EXPERIMENT STATION, Wooster and U. S. DEPARTMENT OF AGRICULTURE, Cooperating

Field corn lines

Oh02	Oh33	Oh56
Oh07	Oh40B	Oh65
Oh26	Oh51	Oh67
Oh28	Oh51A	Oh84

OKLAHOMA AGRICULTURAL EXPERIMENT STATION, Stillwater

No lines released

OREGON AGRICULTURAL EXPERIMENT STATION, Corvallis

No lines released

PENNSYLVANIA AGRICULTURAL EXPERIMENT STATION, State College

No lines released

RHODE ISLAND AGRICULTURAL EXPERIMENT STATION, Kingston

No lines released

SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION, Clemson

No lines released

SOUTH DAKOTA AGRICULTURAL EXPERIMENT STATION, Brookings

No lines released

TENNESSEE AGRICULTURAL EXPERIMENT STATION, Knoxville and U. S. DEPARTMENT
OF AGRICULTURE, Cooperating

Field corn lines

T7 (Formerly J7-2E) *
J7-6A *
T8 (Formerly J8-6G)
J10-5B *

TEXAS AGRICULTURAL EXPERIMENT STATION, College Station

Sweet corn line

36122-3-1

U. S. DEPARTMENT OF AGRICULTURE

Lines of Corn-Belt Maturity

CI.4-8
CI.187-2
CI.540

Late White Lines

CI.11b	CI.41
CI.23	CI.43
CI.24	CI.61

Late Yellow Lines

CI.1	CI.3A	CI.7
CI.2	CI.5	
CI.3	CI.6	

UTAH AGRICULTURAL EXPERIMENT STATION, Logan

No lines released

VERMONT AGRICULTURAL EXPERIMENT STATION, Burlington

No lines released

VIRGINIA AGRICULTURAL EXPERIMENT STATION, Blacksburg

No lines released

* Seed no longer maintained by the originating station.

WASHINGTON AGRICULTURAL EXPERIMENT STATION, Pullman

No lines released

WASHINGTON--IRRIGATION BRANCH EXPERIMENT STATION, Prosser

No lines released

WEST VIRGINIA AGRICULTURAL EXPERIMENT STATION, Morgantown

No lines released

WISCONSIN AGRICULTURAL EXPERIMENT STATION, Madison

No lines released

WYOMING AGRICULTURAL EXPERIMENT STATION, Laramie

No lines released

* * * * *

Meeting adjourned at 12:20 p.m.

ROSTER OF ATTENDANCE

Connecticut, New Haven

Nelson, O. E., Jr., Connecticut Agricultural Experiment Station
Singleton, W. R., " " " "

Delaware, Newark

Phillips, C. E., Delaware Agricultural Experiment Station

Maryland

Jenkins, Merle T., Plant Industry Station, Beltsville
Rothgeb, R. G., Maryland Agricultural Experiment Station, College Park

Massachusetts, Amherst

Yegian, H. M., Massachusetts Agricultural Experiment Station

New Hampshire, Durham

Higgins, L. J., New Hampshire Agricultural Experiment Station

New Jersey, New Brunswick

Ahlgren, G. H., New Jersey Agricultural Experiment Station
Anderson, J. C., " " " " "
Haenseler, C. M., " " " " "
Pepper, Bailey B., " " " " "
Snell, Robt. S., " " " " "

New York, Geneva

Shafer, John, Jr., New York State Agricultural Experiment Station

Ohio, Wooster

Stringfield, G. H., Div. of Cereal Crops and Diseases, U.S.D.A.

Ontario, Ottawa

Ferguson, Wm., Central Experimental Farm

Pennsylvania, State College

Huber, L. L., Pennsylvania Agricultural Experiment Station
Seem, B. L., " " " "

Virginia, Blacksburg

Phillippe, P. M., Virginia Agricultural Experiment Station

West Virginia, Morgantown

Cartledge, J. L., West Virginia Agricultural Experiment Station

OFFICERS AND COMMITTEE MEMBERSHIP, 1946

Referee - W. L. Slate

Executive Committee

Chairman - L. L. Huber
Vice Chairman - R. G. Rothgeb
Member-at-large - D. F. Jones
Secretary - M. T. Jenkins

Committee on Uniform Tests of Field Corn

L. L. Huber, Chairman
R. G. Wiggans
D. F. Jones

Committee on Sweet Corn Investigations

W. R. Singleton, Chairman
R. M. Bailey
W. H. Lachman
M. T. Lewis
John Shafer, Jr.
R. S. Snell

Committee to Formulate a Uniform Policy on
the Release and Distribution of Inbred Lines

R. G. Wiggans, Chairman
J. C. Anderson
R. G. Rothgeb
M. T. Jenkins

Committee on the Uniform Designation of Hybrids

J. C. Anderson, Chairman
L. L. Huber
R. G. Wiggans

Committee on Statistical Designs for the Uniform Comparisons

C. E. Phillips, Chairman
C. I. Bliss
H. M. Yegian

LIST OF NORTHEASTERN EXPERIMENT STATIONS

Connecticut	New Jersey
Delaware	New York
Maine	Pennsylvania
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Maryland	Vermont
New Hampshire	West Virginia

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NERVOUS
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SYSTEM

THE
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